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DESCRIPTION OF AN INVENTION

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(54) (57) METHOD FOR MAKING SILICATE GLASS from a stock, containing calcium and magnesium oxides as components, characterized in that to intensify the process for making the glass stock and to accelerate the fining of the glass melt, calcium and magnesium oxides are introduced into the stock as a mixed calcium-magnesium hydrosilicate.

The invention relates to the technology for making silicate glass.

A method is known for making silicate glass from a stock, containing as components calcium and magnesium oxides, which are introduced into the stock with the addition of dolomite ($\text{CaCO}_3 \cdot \text{MgCO}_3$).

The object of the invention is to intensify the process for making glass stock and to accelerate the fining of the glass mixture.

For this purpose, as taught by the proposed method, calcium and magnesium oxides are introduced into the stock in the form of a mixed calcium-magnesium hydrosilicate ($\text{CaO} \cdot \text{MgO} \cdot n\text{SiO}_2 \cdot m\text{H}_2\text{O}$), which plays the role of an intensifier, because its use reduces the temperature of glass making by approximately 200°C and reduces the time for glass making by approximately tenfold. The water of crystallization, in turn, accelerates the process of fining of the glass melt.

The mixed calcium-magnesium hydrosilicate can be obtained by two methods.

Method I. A solution of sodium metasilicate is caustified with a suspension of Ca(OH)_2 and Mg(OH)_2 at 80–90°C for 30–40 min. The slurry is then filtered, washed, and dried.

Method II. Diatomite is first mixed in a conical decanter in an aqueous medium to precipitate the mechanical admixtures. The diatomite slurry is then transferred to a tank mixer, into which the glass suspension, Ca(OH)_2 and Mg(OH)_2 , with a specified composition is transferred, and the mixture is kept at 80–90°C for 1 h. After this, the slurry is filtered and the obtained precipitate (calcium-magnesium hydrosilicate) is dried.

The silica modulus ($\text{SiO}_2:\text{CaO}:\text{MgO}$) in the product varies in the range of 1–6.